

equal, long, those of the first two abdominal segments also long ; but the rest very short and inconspicuous, stellate. Dorsal tufts and ventral brush of anal segment long.

Pupa. (Fig. 4.)—Essentially as in *Culex*. Thorax and cases forming a large elliptical mass, round which the slender, distinctly segmented abdomen curves, bearing a pair of anal paddles. Segments dorsally tufted with stellate hairs and some small tufts about the eyes and between the prothoracic air tubes. Tubes long, slender, uniform in width, not flared, but slightly bent in the middle, about twelve times as long as wide.

NOTES ON SOME SPIDERS OF WALCKENAER, KOCH, AND OTHERS.

BY NATHAN BANKS.

The descriptions of new species in Walckenaer's *Insectes Aptères* fall into two classes: descriptions based on specimens, and descriptions based on figures. The former class are undoubtedly valid and I intend to accept them wherever I can apply them. Descriptions of figures, however, I hold, have no claim on the naturalist. Not only are they based on figures, but the figures have never been published. Many of the descriptions are sufficient for identification, but most are not. But no matter how complete, they are not descriptions of spiders ; but of figures of spiders. They rank with "hearsay evidence." I shall not use them nor list them ; I shall ignore them. The species Walckenaer described from specimens are usually marked with an "M," indicating, as he states, that the specimen was in the Paris Museum. In a few cases the type was in his own collection. In the following pages I have tried to identify such species that were described from the United States. The second volume of the "*Aptères*" bears date of 1837, it should be as late as 1842 since there are references in it to 1841.

A number of species described by C. L. Koch in "*Die Arachniden*" from the United States have never been identified by later arachnologists. Most of them can be easily placed ; a few are still doubtful.

I have added notes on a few other spiders, principally on some of Keyserling's *Attidæ*, few of which have been noticed by current writers.

SPECIES FROM WALCKENAER.

Attus morsitans *Walck.*, I, p. 432, 1837.

Walckenaer says "I have described this species after an individual of the collection of Bosc." There is no other indication that Bosc had a collection, or that Walckenaer saw it. All the other species referred to Bosc are certainly based wholly on the Bosc MSS. In the preface where Walckenaer speaks of Bosc's MSS. he does not say a word of any specimens. So I do not believe that Walckenaer ever saw the spider which he named *Attus morsitans*.

Attus milberti *Walck.*, I, p. 433, 1837.

Specimen taken by Milbert in New York; it is a synonym of *Marptusa undata* De Geer.

Attus cunctator *Walck.*, I, p. 433, 1837.

Appears also to be *Marptusa undata*.

Attus signatus *Walck.*, I, p. 434, 1837.

Type from New York. Cannot place it, unless it is a young specimen of *Phidippus rufus* Hentz.

Lycosa rabida *Walck.*, I, p. 320, 1837.

This is evidently *Lycosa scutulata* Hentz, and has priority.

Lycosa avida *Walck.*, I, p. 322, 1837.

This is plainly *Lycosa communis* Emerton; *L. sagitta* Hentz is probably the same species.

Lycosa mordax *Walck.*, I, p. 321, 1837.

Described from a specimen from New York. Probably the young of either *L. carolinensis* Hentz or of *L. nigroventris* Emerton. Abbott's figures doubtless refer to a different species, *L. lenta* Hentz.

Lycosa milberti *Walck.*, I, p. 336, 1837.

Apparently *L. carolinensis* Hentz, and has priority; type is from New York.

Lycosa sayi *Walck.*, I, p. 337, 1837.

Appears to be the same as the preceding in spite of what Walckenaer

says. The type is from New York, and there are not two species of this appearance in that vicinity.

Lycosa helluo Walck., I, p. 337, 1837.

Plainly *L. nidicola* Emerton [*L. babingtoni* Blackwall]. Type is from New York. *L. riparia* Hentz is practically identical, but this southern form may prove to be separate since it is always more plainly marked. *Trochosa rufra* Koch is the same species.

Lycosa gulosa Walck., I, p. 338, 1837.

Apparently the same as the preceding ; locality is given as "Amer. septent."

Lycosa tarentula carolinensis Walck., I, p. 285, 1837.

This is *L. carolinensis* Hentz, and has place priority over *L. milberti* and *L. sayi*. *Lycosa tarentuloides philadelphia* Walck. is based on a figure found on a plate in the Journ. Philad. Acad. Nat. Sci., II, pl. 5. There is no description in that work.

Linyphia argyroides Walck., II, p. 282, 1842.

According to Walckenaer the description is taken from a specimen in his collection that came from either Guadeloupe or Algeria. It certainly is not the *Argyroides trigonum* Hentz, but appears to be *Argyroides nephile* Taczanowski (Horæ Soc. Ent. Ross., IX, p. 114, 1872), and has priority.

Epeira cauta Walck., II, p. 35.

From New York. It is indeterminable, may be *Epeira scolopetaria*, or *E. domiciliorum* young.

Epeira benjamina Walck., II, p. 42.

The type is from Martinique ; it is probably not *E. domiciliorum* to which McCook refers it.

Epeira graduata Walck., II, p. 48.

From New York. Appears to be *Epeira insularis* Hentz without any doubt. The male is described from Abbott's figures, and comes first, so it is the type.

Epeira circulata Walck., II, p. 79.

Walckenaer says he describes it from a specimen in his collection. He records it from several Southern localities. Apparently the young of *E. balaustina* McCook.

Epeira jaspidata Walck., II, p. 59.

His description is based on Abbott's figures, so is not of value, but he gives as a synonym *Epeira gigas* of Leach (Zool. Miscell., II, 132). All Leach says as regards locality is, "I suspect this gigantic *Epeira* to be a native of North America." Leach's description and figure are poor, but sufficient, I think, to indicate that he had a large *Epeira insularis* Hentz before him. He figures the patellæ dark only at tip; this suits *E. insularis*, but not *E. trifolium*. The shape of the body shows it not to be *E. domiciliorum*. Thus, by elimination, it must be *Epeira insularis* Hentz. The species will stand as follows:

Epeira gigas Leach.

E. gigas LEACH, Zool. Miscell., II, p. 132, pl. 109, 1815.

E. jaspidata WALCK., Aptères, II, p. 59, 1842.

E. insularis HENTZ, Jour. Bost. Soc. N. H., V, p. 470, 1850.

E. obesa HENTZ, Jour. Bost. Soc. N. H., V, p. 471, 1850.

E. annulipes GIEBEL, Zeitschr. f. Ges. Naturwiss., XXXIII, p. 250, 1869.

E. conspicellata (WALCK.) MCCOOK, Amer. Spid., III, p. 143, 1893.

SPECIES FROM C. L. KOCH.

Corinna amœna Koch, Die Arachn., IX, p. 21, 1842.

This is plainly the same as *Herpyllus ornata* Hentz, and has five years' priority.

Corinna cingulata Koch, Die Arachn., IX, p. 22, 1842.

This is Keyserling's *Castaneira bivittata*, and, of course, has priority.

Corinna tricolor Koch, Die Arachn., IX, p. 24, 1842.

Appears to be a species distinct from anything described by later authors; I have a form which agrees with it from near Washington, D. C. Koch's descriptions in this genus are very good for the time and far superior to those of Hentz; his figures are fully as good. Walckenaer (Apt., IV, p. 561) puts these species in the genus *Spa-rassus*!

Thomisus luctans Koch, Die Arachn., XII, p. 63, 1845.

Plainly *Xysticus quadrilineatus* Keys., and, of course, has priority. The type comes from Pennsylvania.

Pachygnatha tristriata Koch and **P. xanthostoma** Koch.

These are as McCook has them in his Amer. Spiders, Vol. III. The types are from Pennsylvania.

Dolomedes scapularis Koch, Die Arachn., XIV, p. 119, 1848.

This is Hentz's *D. sexpunctatus*, a young male; Hentz's name dates from 1845. Type of Koch is from Pennsylvania.

Dolomedes ærugineus Koch.

The locality is given as "Amerika," so probably not from the United States. *D. binotatus* is given as from "Nordamerika." I cannot now place it; apparently not Hentz's *D. urinator* which also has two spots on the cephalothorax.

Trochosa vafra Koch, Die Arachn., XIV, p. 135, 1848.

This is plainly *Lycosa nidicola* Emerton, the *L. helluo* of Walckenaer, 1837. Locality is given as "Amerika."

Mævia sulphurea Koch, Die Arachn., XIV, p. 71, 1848.

This is plainly the male of *Wala* (*Anoka*) *mitratus* Hentz. *M. pallida* Koch is the female of the same species, as Peckham states.

Mævia tibialis Koch, Die Arach., XIV, p. 78, 1848.

It is Peckham's *Admestina tibialis*, as I have previously stated, and has priority.

Mævia aurulenta Koch, Die Arach., XIV, p. 84, 1848.

It is the female of *Icius elegans* Hentz; *M. cristata* Koch is the male of the same species as stated by Peckham.

Mævia annulipes Koch, Die Arach., XIV, p. 80, 1848.

This appears to be *Astia vittata* Hentz; *M. pencillata* Koch is the dimorphic male (*Attus niger* Hentz) of the same species, as noted by Peckham.

Euophrys amabilis Koch, Die Arach., XIII, p. 215, 1846.

Not listed in Marx's "Catalogue." The type is from Pennsylvania; it appears to be the young of *Phidippus rufus* Hentz.

Euophrys leucophæa Koch, Die Arach., XIII, p. 216, 1846.

The specimen (♂) comes from Pennsylvania: it appears to be the *Salticus borealis* Blackwall, the *Hasarius hoyi* Peckham, and should now be called *Ergane leucophæa* (Koch).

Euophrys humilis Koch, Die Arach., XIII, p. 217, 1846.

It appears to be an immature specimen of *Phidippus rufus* Hentz, or some closely allied form.

Phidippus auctus Koch, Die Arach., XIII, p. 148, 1846.

This, in my opinion, is *Phidippus insolens* Hentz ; Peckham has considered it identical with *Phileus rimator* Walck.

Phidippus testaceus Koch, Die Arach., XIII, p. 160, 1846.

Plainly *Phidippus rufus* Hentz.

Phidippus electus Koch, Die Arach., XIII, p. 144, 1846.

This is *P. albomaculatus* Keyserling, and has priority.

Phidippus concinnatus Koch, Die Arach., XIII, p. 145, 1846.

It is *P. audax* Hentz.

Phidippus dubiosus and **P. elegans** Koch, Die Arach., XIII, pp. 135 and 142, 1846, are both referable to *P. audax* Hentz.

Phidippus insigniarius Koch, Die Arach., XIII, p. 130, 1846.

It is the male of *P. insolens* Hentz.

Phidippus paludatus Koch, Die Arach., XIII, p. 149, 1846.

Is a male of *P. cardinalis* Hentz.

Phidippus personatus Koch, Die Arach., XIII, p. 141, 1846.

It is a young *P. audax* Hentz. Possibly some species referred to *P. audax* were based on *P. miniatus* Peckham, but one cannot tell from these figures, but few of Koch's specimens came from far enough south to be the latter species.

Phidippus castrensis Koch, Die Arach., XIII, p. 141, 1846.

This is a male of *P. rufus* Hentz.

Phidippus togatus Koch, Die Arach., XIII, p. 129, 1846.

This is plainly *P. obscurus* Peckham, and has priority.

Phidippus carolinus Koch, Die Arach., XIII, p. 136, 1846.

I cannot now place this species, which appears to have some affinity with *P. variegatus*.

ATTITUDE OF KEYSERLING.

Phidippus purpuratus Keys., Verh. Zool.-Bot. Ges. Wien, 1883, p. 489.

The specimen from Maine must certainly be *P. audax* Hentz. The Utah specimen may be different.

Phidippus albomaculatus Keys., *ibid.*, p. 491.

Appears to be *P. mystaceus* without doubt.

Phidippus ruber Keys., *ibid.*, p. 493.

Peckham has considered this identical with *P. rufus* Hentz; I think it is certainly *P. cardinalis* Hentz, or the northern representative of that species.

Phidippus gracilis Keys., *ibid.*, p. 495.

Appears to be *P. obscurus* Peck., which is a synonym of *P. togatus* Koch.

Phidippus clarus Keys., *ibid.*, p. 497.

Belongs to the *P. rufus* group, and I think a true *P. rufus* Hentz.

Phidippus pulcherrimus Keys., *ibid.*, p. 492.

This is a good species; I have it from Florida.

Phidippus bicolor Keys., *ibid.*, p. 496.

This is a good species, and has been lately redescribed by Peckham under the names of *P. ardens* and *P. californicus*.

Wala albovittata Keys., *ibid.*, p. 517.

This is *Icius palmarum* Hentz. The genus is, I think, distinct, so that *Anoka* Peckham, proposed for a congeneric species, becomes a synonym of *Wala* Keyserling.

OTHER SPIDERS.

Ariadne rubella Keys., Amer. Spinn., Fam. Pholcid. Scytod., u. Dysderidæ, 1877, p. 229.

This name is omitted from Dr. Mark's catalogue; it is from New Orleans, and is the same as Hentz's *Ariadne bicolor*.

Singa maculata Emerton.

This name is preoccupied by Thorell in 1875; I propose to call it *S. truncata*.

Epeira incestifica Keys.

This is without doubt the same as *Epeira corticaria* Emerton. I have seen co-typical specimens.

Epeira bucardia McCook.

Typical specimens of this species prove to be *Cyrtophora californiensis* Keys., an Epeirid very common on the West Coast.

Larinia forata Keys., Die Spinn. Amer., IV, p. 295, 1893.

Type is the same as type of *Larinia nigrofoliata* Keys. It is an *Epeira* as indicated by McCook in his plates, but not mentioned in the text.

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THE LARVA OF CATOCALA ILLECTA.

BY WILLIAM BEUTENMÜLLER.

Head pale violet gray, lower part yellowish; four black, vertical stripes on each lobe in front, not reaching the top; on the triangular frontal piece is also a black stripe, and one on the sides. On top are two black spots. Mouth part and antennæ yellowish, semitranslucent. First segment above, including the cervical shield orange; the latter with two black dots, closely together in front; hind edge with black spots and three small ones on each side. Body tapering at the ends, smooth, without lateral fringes, and with black and sordid white transverse bands, giving the larva a very striking appearance. Below the spiracles is a broad white stripe narrowing towards the first and last segments. On each side of the body along the subdorsum are two orange spots, the anterior pair closer together than the posterior pair. On each of the second and third segments is a broad, orange, transverse band. Along the sides is a row of orange red spots enclosing the black spiracles. On the last segment all the spots become confluent. Anal plates orange red, marked with a little black. Thoracic feet black, semitranslucent, dull amber yellow inside. Abdominal legs black outside, with a shining black corneous plate on each; pinkish inside. Underside of body with the transverse lines less defined; the light ones pinkish. Anal legs orange. Length, 50 mm.

Food-plant: Honey locust (*Gleditschia triacanthos*).

The larva in the previous stage is very similar to the last. Received from Mr. O. C. Poling, Quincy, Illinois.